

51st Academy of Aphasia Proceedings

Generalizing Naming Ability through Mental Imagery

Bhatnagar S.^{a,*}, Zmolek B.^a, DeGroot D.^b, Sheikh A.^a, Buckingham H.^c^a *Marquette University*^b *Milwaukee Public Schools*^c *Louisiana State University***Introduction**

Developing an effective treatment plan that ensures generalization beyond treated to untreated stimuli remains a challenging task. Many treatment approaches focussing on word finding deficit (Boyle & Coelho, 1995; Boyle, 2004, Kiran, 2007, and Shewan & Bandur, 1986) have documented therapeutic gains in naming through confrontation and semantic mediation. We incorporated mental imagery (MI) as a strategy for assisting a patient with anomia and found improved naming and generalization.

The perceptual representations embedded in mental imagery (Thomas, 2008) have been recognized for training mindfulness, meditation and for modulating the brain's neural-circuitry with implications for cortical reorganization (Sheikh, 2003). The processes of visualization and identification have played a role in the neuronal circuitry of mind-body integration (Davidson, 2000); the strength of MI is as powerful as actual physical experience (Klinger 1980) with implications for changes in brain physiology (Richardson, 1984).

MI has two important attributes. First, all humans have internal conceptual schemas, which operate each time the concept is realized or movement is undertaken (Arbib, 2006). Second, the brain responds similarly whether a movement is undertaken or conceptualized. The therapeutic value of MI was realized in physical and occupational rehabilitation where it was found that MI integration in therapy had greater beneficial effects on motor training than therapy limited to exercise (Liu et al, 2004; Page et al, 2007).

We report our experiences with MI-based strategy in learning and generalizing of object naming. The purpose was to evaluate first if activation of the neural circuitry through MI facilitates naming skills and if the training encompassed both typical and atypical lexical categories (Clark & Clark, 1977). And finally to see if effects of MI generalized to untrained words.

Method

The consenting subject was a two-year post-onset, 67-year old educated male with moderate aphasia secondary to a MRI confirmed left temporal-parietal infarct in addition to an earlier frontal infarct. He made significant gains following two years of SLP treatment. However, he continued to exhibit moderate word retrieval deficit.

We incorporated MI to explore the restoration and generalization of trained mental representations

* Corresponding author.

E-mail address: subhash.bhatnagar@mu.edu.

that comprised typical and atypical words in the lexical categories of: sports, furniture, clothes, and birds (Rosch, 1975). The patient was cued with the name and was directed to ponder the pictured object for one minute but to refrain from naming it. The patient reviewed the four sets of words, each set containing twenty words three times a day for six weeks without verbally naming them.

Results

The post-treatment assessment strengthened the naming of both typical and atypical items. This learning further generalized to the untrained words. A facilitatory impact of the treatment restored the patient's ability to write the names of the words.

Conclusion

In sum, MI proved to be effective by activating the neural circuitry associated with the use of the verbal lexicon. Further, the suppression of patient's erroneous verbal attempts helped him remain focused and prevented the formation of off-target circuitry networks in verbal searching. Improved writing was an indirect serendipitous generalization.